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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,310	07/30/2003	John T. Mackay		9121

7590 10/27/2004
Gerald E. Linden
12925 LaRochelle Cr.
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EXAMINER

JOHNSON, JONATHAN J

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 10/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/630,310

Applicant(s)

MACKAY, JOHN T.

Examiner

Jonathan Johnson

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 6-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 14-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-18 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-5 and 14-18 are drawn to a method of , classified in class 228, subclass 248.1.
- II. Claims 6-13, drawn to a set of blades, classified in class 29, subclass various.

The inventions are distinct, each from the other because of the following reasons:

Inventions Group I and Group II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus can be used in a leveling operation that does not involve filling cells.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Gerald Linden on 9-21-04 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-5 and 14-18. Affirmation of this election must be made by applicant in replying to this Office action. Claims 6-13 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Drawings

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 4-5 and 14-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Onishi et al. (6,395,335). Onishi et al. teach a first blade disposed a distance above a front surface of the mask (figure 1, item 10) and with a glob of viscous material in front of the first blade (figure 1, item 7), advancing the first blade across the surface of the mask (figure 1, item 10); and with a second blade in contact with the surface of the mask, advancing the second blade across the surface of the mask to remove residual viscous material from the surface of the mask (figure 1, item 14a); wherein the viscous material is solder paste (figure 1, item 7); the first blade

is made of a plastic material; the second blade is moved in unison with the first blade, across the mask (figure 1, item 17); positioning a first mask between a first print landing areas and a second print landing area; with a first set of blades parked at the first landing area (figure 1, items 10 and 14a), disposing a glob of solder paste in front of the first set of blades (figure 1, item 7); advancing the first set of blades advances across the towards the second print landing area to fill the cells of the first mask with solder paste (figure 1, item 3); continuing to advance the first set of blades until it is entirely beyond the mask, and residual solder paste that is being pushed forward is on the second print landing area; then, retracting the first set of blades; removing the first mask, and positioning a second mask between the two print landing areas; with a second set of blades (col. 11, ll. 35-50), starting from the second print landing area, pushing the solder paste entirely across the second mask to fill the cells of the second mask, until residual solder paste that is being pushed forward is on the first print landing area (figure 1, items 10 and 14b); disposing a quantity of the viscous material on a surface of the mask (figure 1, item 7); bringing a first blade to a distance of a few mils from the surface of the mask (figure 1, item 10); contacting the mask with a cleaning blade; advancing the print blade across the surface of the mask to fill the cells; and advancing the cleaning blade across the surface of the mask, behind the print blade (figure 1, item 14a); the viscous material is solder paste (abstract).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Onishi et al. (6,395,335) as applied to claim 1 above and further in view of Taguchi (5,176,759). Taguchi teaches the viscous material comprises particles having an average particle size; and the distance is equal to a few average particle sizes (col. 7, ll. 20-25). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify solder of Onishi et al. to utilize the solder having uniform particle size in order to minimize flux residue (see Taguchi col. 1, ll. 5-10).

Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onishi et al. (6,395,335) in view of MacKay et al. (5,988,487). Onishi et al. teach providing a mask having a plurality of cells (figure 1, item 3); filling the cells of the mask with solder paste by filling the cells of the mask with a flood blade spaced a distance from the surface of the mask and moving across the mask followed by a cleaning blade in contact with the surface of the mask and moving across the mask (Figure 1, items 10 and 14a). MacKay et al. teach reflowing the solder material; and separating the substrate from the mask (col. 2, ll. 20-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the heating of Onishi et al. to utilize particular heater stage arrangement in order to ensure good solder ball formation on a substrate (MacKay et al.; col. 2, ll. 20-30).


Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Johnson whose telephone number is 571-272-1177. The examiner can normally be reached on M-Th 7:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 571-272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jonathan Johnson
Examiner
Art Unit 1725